GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA

STARRED QUESTION NO:393
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Disposal of Nuclear Waste
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Will the Minister of ATOMIC ENERGY be pleased to state:

(a)the quantum of nuclear waste generated by the Nuclear Power Plants (NPPs) during each of the last three years, NPP-wise along with the mechanism put in place to safely dispose of such waste;

(b)whether an environmental assessment has been carried out for sites being used for the disposal of such waste and if so, the details thereof and if not, the reasons therefor;

(c)the extent to which the technology deployed for the said purpose is effective and efficient along with the details of the environmental impact, if any, identified;

(d)whether the Government proposes to build deep geological repository for storing nuclear waste using latest technology and if so, the details thereof including the specifics of the support, if any, received / being received from foreign countries; and

(e)the time by which the said facility is likely to be operational?

Answer

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (Dr. JITENDRA SINGH) :

(a)The quantity of low and intermediate level waste to be stored at the site is about 0.15 cubic meters/year/MW. A comprehensive radioactive waste management system is established taking into account the operational capability under the supervision of an independent regulatory agency. The radioactive solid wastes generated during operation and maintenance of nuclear power plants are segregated and volume reduced prior to its disposal. Disposal of waste is carried out in specially constructed structures such as stone lined trenches, reinforced concrete trenches and tile holes. These disposal systems are designed on multi-barrier principle for ensuring effective containment of radioactivity. The areas where the disposal structures are located are kept under constant surveillance with the help of bore-wells laid out in a planned manner. This policy is on par with international practices following the guidelines of International Atomic Energy Agency (IAEA).

(b)A comprehensive environmental assessment, following international practices and guidelines from International Atomic Energy Agency, is done prior to siting of nuclear installation including waste disposal facility. It covers assessment of air quality, rainfall data, ground water quality, vegetation details, flora and fauna, population density etc. together with detailed investigation on soil and rock strata. Nuclear power projects require prior environmental clearance from Ministry of Environment Protection Act 1986 and the rules made there under. As a part of obtaining the environmental clearance, environment impact assessment is carried out. Additionally, AERB grants clearance to nuclear power plant site after reviewing potential radiological impacts, including nuclear waste disposal facility.

(c)The mechanism used is very effective and efficient. The areas, where the disposal structures are located, are kept under constant surveillance with the help of bore-wells laid out in a planned manner. The underground soil and water samples from these bore wells are routinely monitored and to confirm effective confinement of radioactivity present in the disposed waste.

Till date the surveillance of the disposal areas at different sites has confirmed the high degree of effectiveness of the disposal system for the containment of the disposed wastes. There has been no incident of release of radioactivity from such disposed wastes. No effect of radiation from the disposed wastes on the public or the environment has been observed.

(d)Closed nuclear fuel cycle is being followed in India, where, spent fuel is reprocessed and most of the component of spent fuel is recycled back as a fuel for future reactors Main fission products like Cs-137 & Sr-90 present in the waste are recovered using in house developed technologies and deployed for societal applications covering medical applications, external irradiators and other medical applications. This is accomplished first time in the world by India, where radioactive waste is regarded as a useful by-product. Considering the level of waste generation and the technological innovation there is no requirement of repository in the near future. The programme for India"s nuclear waste management/disposal is based on totally indigenous developed technology following international norms/guidelines.

(e)With the advent of new technologies based on partitioning of waste, where long - lived radioactive waste constituents are separated prior to immobilizing in glass matrices, the need of geological disposal facility will not be there before the year 2075.

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